ABSTRAK

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RANCANG BANGUN PERAWATAN DAN PEMANTAUAN TANAMAN JARAK JAUH DENGAN APLIKASI BOT TELEGRAM BERBASIS NODEMCU ESP8266 DAN OPENCV
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Kata Kunci: Penyiraman Tanaman, Fotosintesis, NodeMCU, OpenCV, Bot Telegram
(xiii + 77+ Lampiran)

Plants are one type of organism that are usually cultivated by humans for their benefits. Plants make their own food made of inorganic elements found in the environment with the help of sunlight. This process is called the process of photosynthesis which is carried out by all plants, so plants need sufficient sunlight and water. Plants also need different levels of soil moisture and air temperature depending on the type of plant, as well as soil type and geographic location. therefore this prototype is designed to meet the needs of plants automatically and manually by making controls on the water pump for watering and providing ultraviolet light for photosynthesis, making fruit monitors using the OpenCV (Open-Source Computer Vision Library) concept which can find out which fruit is ready to harvest. , Creating a Telegram Bot massager service for communication with watering systems, photosynthesis, and monitoring cameras with a user interface to the prototype in the form of notifications and instructions. This prototype uses a soil moisture sensor to detect soil moisture, a DHT11 sensor to detect temperature, the NodeMCU ESP8266 functions as a watering and photosynthesis system, a double channel relay functions as a grow light switch and a water pump. Using a power supply as a voltage source, Breadboard NodeMCU and jumper cables as a connector. On camera monitoring using laptop and webcam camera. The water pump turns on when it detects the temperature exceeds 28℃ or the humidity is less than 80% then the pump will turn on automatically by giving instructions / Automatic and can be done manually by giving instructions / Manual on the Telegram Bot. Photosynthesis with the /LedOn instruction to turn on the grow light. The monitoring camera detects based on RGB colors (Red, Green, Blue) converted to HSV color images in the form of red, orange and yellow color images on the fruit the Bot Telegram gives a notification that the fruit is ready to harvest.

Daftar Pustaka: (2002-2021)